

ABSTRACT

Disclosed is a variable voltage protection device for electronic devices which in one aspect comprises a thin layer of neat dielectric polymer or glass positioned between a ground plane and an electrical conductor for overvoltage protection, wherein the neat polymer or glass layer does not include the presence of conductive or semiconductive particles. Also disclosed is the combination of the neat dielectric polymer or glass thin layer positioned on a conventional variable voltage protection material comprising a binder containing conductive or semiconductive particles. A multi-layer variable voltage protection component is disclosed comprising three layers of overvoltage protection material wherein the outer two layers contain a lower percentage of conductive or semiconductive particles and wherein the inner layer contains a higher percentage of conductive or semiconductive particles. The multi-layer component can optionally be used in combination with the neat dielectric polymer or glass layer and can optionally have interposed metal layers. A method is disclosed for dispersing insulative particles and conductive or semiconductive particles in a binder using a volatile solvent for dispersement of the insulative particles and the conductive or semiconductive particles before mixing with the binder.